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Calendar

Thurs., July 12
1:00 p.m.

ILC ALCPG Physics and Detector R&D Seminar - Hornets' Nest, WH-8XO
 Speaker: N. Solomey, Wichita State University
 Title: Tagged Neutrons and ILC Calorimeter R&D

2:30 p.m.

Theoretical Physics Seminar - Curia II
 Speaker: S. Willenbrock, University of Illinois, Urbana-Champaign
 Title: Choosing the Factorization Scale in Perturbative QCD

3:30 p.m.

DIRECTOR'S COFFEE
 BREAK - 2nd Flr X-Over
 THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR TODAY

Fri., July 13
3:30 p.m.

DIRECTOR'S COFFEE
 BREAK - 2nd Flr X-Over

4:00 p.m.

Joint Experimental-Theoretical Physics Seminar - One West
 Speaker: A. Sanchez-Hernandez, CINVESTAV-IPN
 Title: Measurements of the Λ_b

Lifetime at DZero

8:00 p.m.

[Fermilab International Film Society](#) - Auditorium

Tickets: Adults \$5

Title: Mùì du du xanh (The Scent of the Green Papaya)

[Click here](#) for NALCAL, a weekly calendar with links to additional information.

Weather

Feature

Fermilab recycling effort educates and entertains kids



Children in Fermilab's Daycare Center show off art that they created from recyclable material as part of a week-long unit on recycling.

When most people think about recycling, they see blue bins and discarded milk jugs. The children in Fermilab's Daycare Center, however, have a different association: they hear music.

"We had the kids make musical instruments from paper-towel rolls and sculptures with egg-cartons. They got really excited," said Susan Braddy-Suhr, a teacher at the Daycare Center and organizer of a recent week-long unit on recycling.

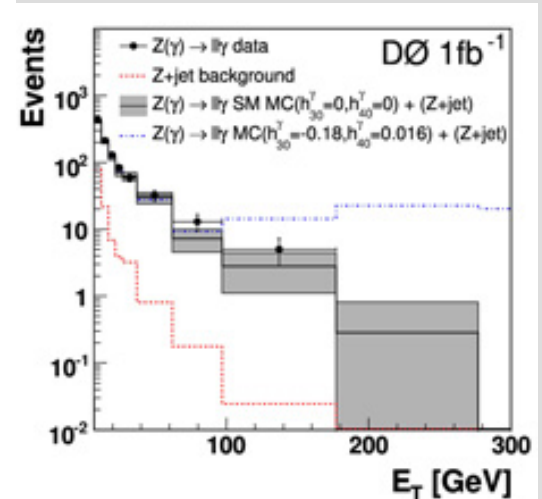
In her lessons, Suhr emphasized the fun side of waste management by helping the children create artwork out of everyday trash. The students also learned how to correctly sort different items for pick-up. Now, they help with organizing and disposing of recyclables in the new bins that have been placed in each room.

The Daycare Center's effort to educate children on the importance of recycling is a part of the current push to make Fermilab more "green." Suhr's lesson was inspired by the recent arrival of recycling bins in all Village buildings. Receptacles for glass, plastic and aluminum will soon be in place around the site.

Suhr and the other daycare staffers are glad to see the changes. While paper constitutes

Fermilab Result of the Week


An illicit interaction



This figure shows the transverse momentum of photons in Z boson + photon events at DZero. The dashed blue line illustrates what would be expected with anomalous Z + photon interactions.

When the particles of our universe interact, they are brought together by one of five mediators: the photon, gluon, and W^\pm and Z bosons. These force carriers of the Standard Model facilitate interactions between matter particles and transmit energy through space. In nearly all cases, the force carriers can also interact with each other. But two of these particles are forbidden to ever meet: the photon and the Z boson. Like Romeo and Juliet, their interactions are not allowed, even though they may share the same stage. And just as with those star-crossed lovers, it might not be safe to trust them to remain apart. However, detecting such an illicit affair is no easy task.

The SM predicts that the photon and Z boson can be produced simultaneously in the Tevatron's proton-antiproton collisions. But they are always separated by a chaperon of a charged quark or lepton. One test for any extra interactions would be to check if the photon and the Z boson are found together more often than what is predicted. If they were, it could be a sign of physics beyond SM expectations. The clearest signatures of Z bosons occur when they decay leptonically to two electrons or muons. By carefully selecting these leptonic Z-boson decays in the company of a photon, physicists at the DZero

 **Chance of showers**
78°/54°

[Extended Forecast](#)
[Weather at Fermilab](#)

[Current Security Status](#)

[Secon Level 3](#)

[Wilson Hall Cafe](#)

Thursday, July 12

- Southwestern chicken tortilla
- Philly style cheese steak
- *Garlic herb roasted pork
- Tomato basil chicken parmesan
- Southwestern turkey wrap
- Assorted sliced pizza
- *Marinated grilled chicken caesar salads

***Carb Restricted Alternative**

[Wilson Hall Cafe Menu](#)

[Chez Leon](#)

Thursday, July 12 Dinner

- Marinated mussels
- Beef & vegetable kebabs
- Rice pilaf
- Lemon cheesecake w/ gingersnap crust

Wednesday, July 18 Lunch

- Shrimp & barley salad w/ green beans
- Summer melons in spiced white wine

[Chez Leon Menu](#)

Call x4598 to make your reservation.

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[Safety Tip of the Week](#)

[ILC NewsLine](#)

much of Fermilab's waste-load, the daycare center has a greater variety of garbage. "We shudder to think at how many recyclable items we were tossing to the landfill before," Suhr said. "Now we can dispose of our milk cartons and snack containers properly."



Children in Fermilab's Daycare Center learn to sort different items for recycling.

-- J. Bryan Lowder

[From iSGTW](#)

To bee or not to bee? Bee society and the human condition



The honey bee's "waggle dance" is the only symbolic language found beyond primates. New genomic data yielded by grid-powered research could help reveal the basis for this and other social interactions. *Stock image from sxc.hu*

The humble honey bee: pollinator, producer of honey, and potential key to the secrets of social interaction.

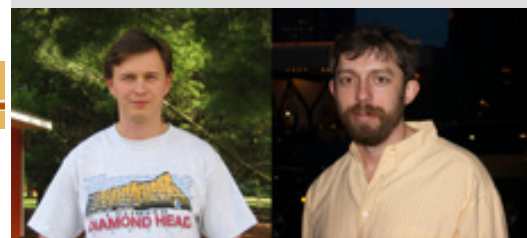
Why can some bees be queen? How can a nurse bee suddenly transform into a forager, just when foragers are needed most? And how can these furry flying insects cast light on our own human behaviors?

[Read More](#)

experiment used one inverse femtobarn of data to measure the rate for Z+photon production. They observed 453 $Z \rightarrow e e$ and 515 $Z \rightarrow \mu \mu$ events with which they measured a production rate of 4.96 ± 0.42 picobarns, which agrees well with the theoretical prediction of 4.74 ± 0.22 picobarns.

After this careful check, DZero scientists proceeded to search for evidence of extra couplings between the photon and Z boson. Theories predict that such couplings would appear as an excess of events at the highest transverse photon energies. By analyzing this energy spectrum, DZero physicists found no evidence for anomalous Z+photon couplings and set limits on possible values. Although it appears the SM's Romeo and Juliet are behaving themselves, DZero will be keeping a vigilant eye out for these illicit interactions.

[Read more here](#)



Alexey Ferapontov
Kansas State University

Yurii Maravin
Kansas State University

Alexey Ferapontov and Yurii Maravin made primary contributions to this analysis.



Oleksiy Ananientov
Florida State University

Andrew Askew
Florida State University

Dmitri Bardin
Kansas State University



Dan Duggan
Florida State University



Jonathan Hays
Imperial College, London



Jovan Mitrevski
Columbia University



Greg Pawloski
Rice University

Christian Schweunenbeger
University of Manchester

Yuri Gerstein
Florida State University

The Electron/Photon Identification group at DZero provides robust tools for reliably identifying electrons and photons.

[Accelerator Update](#)

Info

Fermilab Today
is online at:
www.fnal.gov/today/

Send comments and
suggestions to:
today@fnal.gov

- Cristy Burne, iSGTW

In the News

Beacon News

July 7, 2007

Valley, make no small plans

By Emily Demar



Emily Demar is a
member of the ILC
Task Force

the world's next
generation particle accelerator, a place to
conduct pure scientific research. Today, the
most powerful particle accelerator in the world
is housed at Fermilab, a U.S. Department of
Energy National Laboratory located on the
east side of Batavia, along Aurora's northeast
boundary.

Fermilab is a magical place of scientific
discovery. It also is a source of jobs and
economic benefit for the entire region, as well
as an immense nature reserve. Fermilab's
presence in this country helps to assert our
nation's scientific leadership. But, by this time
next year, a new particle accelerator in
Switzerland, 10 times more powerful than
Fermilab's, will become operational. Because
of the new machine, Fermilab's future is
uncertain. The ILC, which won't be built for
another decade, represents an opportunity to
return the leadership in this type of scientific
research to our country, and to our area.

[Read more](#)

... Two activities, both
involving events
occurring well into the
next decade, have
captured my imagination.
One is related to
Chicago's bid for the
2016 Olympics. ... The
other activity is the
development and site for
the International Linear
Collider. The ILC will be

July 9 - 11

- Two stores provided 43 hours and 9 minutes
of luminosity
- Booster vacuum gauge causes GMPS trips
- MIRF11 trips cause NuMI trips
- MT5Q2 holds off MTest
- ARF4 problems

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

Announcements**Vacancies in DOE Office of Science**

The U.S. Department of Energy's Office of
Science is seeking a highly qualified candidate
with outstanding scientific achievements to fill
the position of [physicist](#). Apply [here](#).

International Folk Dance Thursday

International Folk Dancing is being held in
Ramsey Auditorium for the summer, at 7:30 p.
m. Thursday evenings and will take place on
July 12. Newcomers are always welcome, and
you don't need to come with a partner. Info at
630-584-0825 or 630-840-8194 or [email](#) .

Professional Development classes

New classes are always being added to the
professional development schedule. For the
most up-to-date course offerings, visit the
training [web site](#).

Labwide party on August 3

To celebrate our international community and
its achievements, the Fermi Research Alliance
will host a labwide party in the Wilson Hall
atrium on Friday, August 3, from 3:30 to 6:30 p.
m. The theme of the party is "World-class
people, world-class research." The party will
feature international snacks, beverages, music
and door prizes. All Fermilab employees,
users, contractors and DOE employees are
invited.